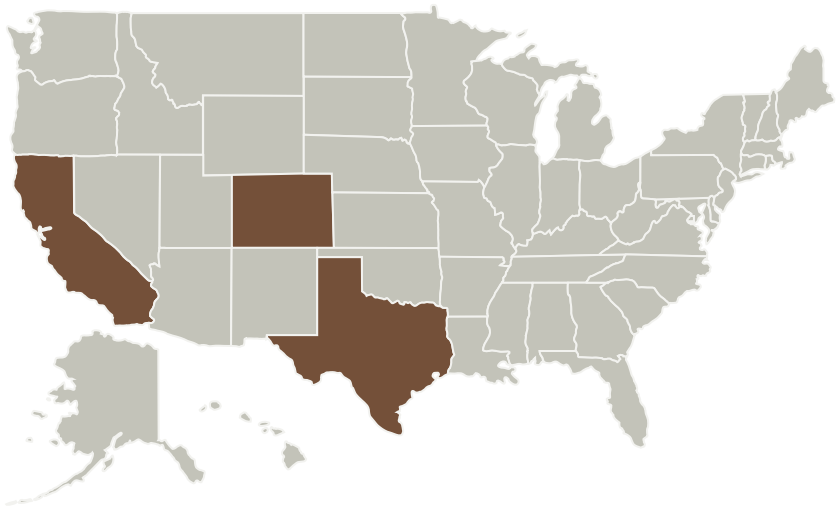
# Maturing the CODEX Strontium Laser Subsystem to TRL 6

Completed Technology Project (2015 - 2018)

## Project Introduction

Under PIDDP, NSF, and internal funding, we have developed an instrument to search for evidence of past life on Mars, to reveal the history of habitability, and to ascertain how the local geology evolved. To validate our dating method, we developed and successfully demonstrated 1st and 2nd generation instruments (one bench-top, and one portable), and successfully produced custom, miniature, solid-state, discrete optics laser systems for desorption, and resonance of Rb and Sr. However, recent advances in fiber laser design allow us to produce resonance laser systems with 0.5X the input power, 4X more output power, 3X lower mass, and 10X fewer optical interfaces; reducing the number of optical interfaces is crucial to reducing alignment and contamination requirements. This proposal seeks to implement and test the fiber laser technology, raising its TRL from 4 to 6.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Southwest Research Institute - San Antonio(SWRI) | Supporting Organization | Academia | San Antonio, Texas |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## Organizational Responsibility

**Responsible Mission Directorate:**

Science Mission Directorate (SMD)

**Responsible Program:**

Maturation of Instruments for Solar System Exploration

## Project Management

**Program Director:**

Carolyn R Mercer

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| Primary U.S. Work Locations | |
|---|---|
| California | Colorado |
| Texas | |

## Project Management *(cont.)*

**Program Manager:**

Haris Riris

**Principal Investigator:**

Fletcher S Anderson

**Co-Investigators:**

Steven M Beck
Fabio Di Teodoro
Ronald B Kalmbach
Tom J Whitaker
Todd S Rose

## Technology Areas

**Primary:**

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

## Target Destination

Others Inside the Solar System